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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTOR(S) : Hui Cheng
TITLE : A RATE-DISTORTION OPTIMIZATION SYSTEM AND METHOD FOR IMAGE COMPRESSION
APPLICATION NO. : 09/724,330
FILED : November 29, 2000
CONFIRMATION NO. : 1009
EXAMINER : Jingge Wu
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LAST OFFICE ACTION : January 18, 2005
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ELECTION AND RESPONSE TO RESTRICTION REQUIREMENT
UNDER 35 U.S.C. § 121

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Office Action issued in connection with the above-captioned application and dated January 18, 2005 has been received and carefully reviewed. The following response is provided.

Restriction Under 35 U.S.C. § 121

The Examiner asserts in the Office Action that the present application includes the following patentably distinct species of the claimed invention:

- I. the species of FIGURE 2; and,
- II. a second species not identified by a particular figure or embodiment.

Applicant contents that the requirement for an election of species is improper. Notably, the second species is not identified by any embodiment or figure in the application. Rather, the Office Action merely recites a set of claims after the second alleged species. However, according to MPEP §806.04(e), “Claims are definitions of inventions. *Claims are never species. ... Species are always the specifically different embodiments*” (Emphasis in original). The Office Action simply does not identify or delineate two distinct embodiments or “species.” If the Examiner should continue to hold that a second species is presented in the application, it is respectfully requested that he identify the particular figure or embodiment in which the second species resides separate from the embodiment of FIGURE 2.

Election

In response to the requirement to elect a single species, as set forth in the Office Action, Applicant hereby elects with traverse the species of FIGURE 2. No other species is suitably identified by the Office Action for the Applicant to elect. In short, Applicant submits that multiple species have not been properly delineated from which to chose one for examination.

Generic Claims

The Office Action indicates that no claims are considered generic. After a careful review of the present application, Applicant respectfully disagrees and submits that at least claims 1 and 9 are generic.

Notably, claim 1 recites:

“A method of image compression, said method comprising the steps of:

- (a) digitizing an image into a plurality of pixels;
- (b) sampling a block of pixels from the digitized image;

(c) segmenting the block of pixels into a plurality of layers in accordance with a first segmentation algorithm to generate a first segmented sample;

(d) segmenting the block of pixels into a plurality of layers in accordance with a second segmentation algorithm to generate a second segmented sample, said second segmentation algorithm being different than the first segmentation algorithm;

(e) compressing the first and second segmented samples to generate first and second compressed image samples respectively;

(f) determining a bit rate for the first and second compressed image samples;

(g) determining how much image distortion results from each compression; and,

(h) selecting the segmenting from steps (c) and (d) which resulted in an optimal compromise between the bit rate and distortion determined in steps (f) and (g)."

Accordingly, claim 1 reads on the embodiment of FIGURE 2. That is to say, various elements of the example image processing unit illustrated in FIGURE 2 carry out steps of the method claimed in claim 1.

Similarly, claim 9 recites:

"An image compression system for compressing an input image, said system comprising:

a first processing bank, said first processing bank including an array of first processors, wherein each first processor has a distinct coder which separately carries out coding to segment and compress the image, said first processors each outputting a bit rate and image distortion measurement resulting from their respective codings; and,

an optimization engine which receives each pair of the rate and distortion measurements from the first processors, said optimization engine selecting the first processor having an optimized compromise between the rate and distortion measurements."

Accordingly, claim 9 also reads on the embodiment of FIGURE 2. That is to say, various elements of the example image processing unit illustrated in FIGURE 2 correspond to the elements claimed in claim 9.

Listing of Claims Readable on the Elected Species

In response to the requirement to list all claims readable on the elected species, Applicant submits that claims 1-17 are readable on the elected species, and accordingly they should all be examined together.

Conclusion

Applicant contents that the foregoing election is fully responsive to the outstanding requirements. Examination of all the claims in the application is respectfully requested, and an early notification of allowability is earnestly solicited. If a telephone call would help to resolve any further issues, the Examiner is invited to call the undersigned.

Respectfully submitted,

FAY, SHARPE, FAGAN,
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Date


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